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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,867	11/30/2000	Tadao Yoshida	450100-02887	1954

20999 7590 05/21/2004  
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EXAMINER

LAMBRECHT, CHRISTOPHER M

ART UNIT PAPER NUMBER

2611

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/726,867

Applicant(s)

YOSHIDA ET AL.

Examiner

Christopher M. Lambrecht

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 2, lines 9-16, the assumptions for vectors A and S are not disclosed in the specification (i.e. the dot product of vectors A and S, etc.).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail et al. (Ismail) (US 6,614,987) in view of Sumita et al. (Sumita) (US 6,581,207).

Considering claims 1 and 10, Ismail discloses a broadcast system and corresponding reception apparatus (i.e., a system for receiving broadcasts, recording system 100, fig. 1, and column 4, lines 40-44) comprising: a broadcast station (see digital satellite system and CATV system, column 4, lines 49-54) for broadcasting digital contents (see digital encoding, column 4, lines 40-47) together with attribute information (attribute information 107), indicating an attribute thereof (i.e., attributive information is related to said digital contents, column 3, lines 43-48) and; a plurality of reception apparatuses (recording

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system 100, fig. 1, where a broadcast system includes a distribution system coupled to at least two reception/receiving apparatuses) having reception means (column 4, lines 40-41) for digital contents (see digital encoding, column 4, lines 40-47) and attributive information (attribute information 107, column 3, lines 33-61), broadcast by a broadcast station (see digital satellite system and CATV system, column 4, lines 49-54); recording medium (storage device 106) for recording received digital contents and attribute information (see storage of program data 105 and attribute information 107 in storage device 106, fig. 1, and column 4, lines 7-8); output means (monitor 108) for outputting the received digital contents (column 4, lines 35-38); selecting means (preference agent 110 and recording manager 112, fig. 1) for comparing selective information indicating user's taste (preference database 116, fig. 1) with the attributive information (107) assigned to digital contents (column 4, lines 13-31).

Although Ismail discloses receiving digital contents (column 4, lines 35-38), attribute information, (107) and selection information (116), and further discloses a means of selecting content (column 8, lines 22-40), Ismail fails to specifically disclose: attribute information expressed as an n-dimensional vector A comprising attribute items as elements indicative of attribute intensities for content; said selection information expressed as an n-dimensional vector S comprising user's taste items as elements indicative of taste intensities; item types and orders for said attribute and said selection information correspond to those for attribute vector A and selection vector S; and said reception apparatus's selection means performs an inner product operation between attribute vector A attached to a broadcast content, and selection vector S and determines whether to select that digital content based on an inner product result, as recited in the claims.

In an analogous art, Sumita discloses a system in which attribute information expressed as an n-dimensional vector (vector K, col. 7, line 67 – col. 8, line 1; where “n” is unspecified, “n-dimensional vector” is met by any vector) containing attribute items (keywords) as elements each indicative of attribute intensities (frequency of use) for content (where the keywords are selected so as to be descriptive

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of programming content, col. 6, lines 57-64 and col. 7, lines 15-23); said selection information expressed as an n-dimensional vector (vector  $P_i$ , col. 7, lines 65-66) comprising user's taste items (i.e., user profile information, column 7, lines 54-58) as elements indicative of taste intensities (weighted according to frequency of use, column 7, lines 65-66); item types and orders for said attribute and said selection information correspond to those for the attribute vector (vector  $K$ ) and the selection vector (vector  $P_i$ ); and said reception apparatus's selection means performs an inner product operation between attribute vector attached to a broadcast content, and selection vector (eq. (1), column 7, line 63 and column 8, lines 1-3), and determines whether to select that content based on an inner product result (see fig. 12, and column 7, lines 50-59), for the purpose of computing the similarity between incoming content attribute information and user's profile information (column 7, lines 50-59).

Consequently, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Ismail to include: attribute information expressed as an n-dimensional vector  $A$  comprising attribute items as elements indicative of attribute intensities for content; said selection information expressed as an n-dimensional vector  $S$  comprising user's taste items as elements indicative of taste intensities; item types and orders for said attribute and said selection information correspond to those for attribute vector  $A$  and selection vector  $S$ ; and said reception apparatus's selection means performs an inner product operation between attribute vector  $A$  attached to a broadcast content, and selection vector  $S$  and determines whether to select that digital content based on an inner product result, as taught by Sumita, for the computing the similarity between incoming content attribute information and user's profile information in a broadcast recording system.

As for claims 3 and 12, the combined system of Ismail and Sumita disclose where said selection information's vector (Sumita, vector  $P_i$ ) is found from a vector of attribute information (Sumita, vector  $K$ )

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attached to a plurality of digital contents (Ismail, see digital encoding, column 4, lines 40-47) selected by a user (Sumita, column 4, lines 62-67).

1. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail and Sumita as applied to claims 1 and 10 above, and further in view of Dunlop and Aggarwal (Aggarwal et al., US006408295B1).

As for claims 2 and 11, the combined system of Ismail and Sumita disclose a broadcast system and corresponding reception apparatus (Ismail, i.e., a system for receiving broadcasts, recording system 100, fig. 1, and column 4, lines 40-44) where said reception apparatus's selection means find a selection value (Ismail, preference agent 110 and recording manager 112, fig. 1) based on the following equation and selects digital content based on the size of this selection value (Sumita, column 7, lines 50-58):

$$P = (A \cdot S) / |A| |S| \quad (\text{see equation (1), Sumita, column 7, line 63}).$$

Ismail and Sumita fail to explicitly state the assumptions:

$$A \cdot S = \sum_{k=1 \text{ to } n} a_k S_k \quad (1)$$

$$|A| = \text{sqrt}(\sum_{k=1 \text{ to } n} a_k^2) \quad (2)$$

$$|S| = \text{sqrt}(\sum_{k=1 \text{ to } n} S_k^2) \quad (3)$$

$$\text{in which neither } A \text{ nor } S \text{ is } 0 \text{ vector.} \quad (4)$$

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In an analogous art, Dunlop discloses assumptions (1), (2), and (3) (pp. 139-140), for the purpose of defining equations representing the scalar (dot) product of two or more vectors and the magnitude (size) of a vector.

In addition, in an analogous art, Aggarwal discloses assumption (4) (col. 4, lines 47-52, i.e., that vectors in a vector product operation are non-zero), for the purpose of obtaining a meaningful, non-zero result.

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined teachings of Ismail and Sumita to include assumptions (1), (2), and (3), shown above, as taught by Dunlop, for the purpose of defining equations representing the scalar product of two or more vectors and the magnitude of a vector for performing calculations in a broadcast recording system.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined teachings of Ismail, Sumita, and Dunlop to include assumption (4), shown above, as taught by Aggarwal, for the purpose of obtaining a meaningful, non-zero result when performing calculations in a broadcast recording system.

4. Claims 4-6 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail in view of Sumita, as applied to claims 3 and 12 above, and further in view of Hawkins (Hawkins et al., US006005561A).

Considering claims 4 and 13, the combined system of Ismail and Sumita disclose a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) and digital contents (Ismail, see digital encoding, column 4, lines 40-47) selected by the user (Sumita, column 4,

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lines 62-67), however, they fail to specifically disclose wherein said selection vector is found according to the following equation:

$$S = 1/M \sum_{k=1 \text{ to } M} A_k$$

where M is the number of contents selected by a user; and an attribute vector for the Kth content selected by a user is assumed to be:  $A_k = (a_{1k}, a_{2k}, a_{3k}, \dots, a_{nk})$ , as recited in the claims.

In an analogous art, Hawkins discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information (corresponds to the equation recited in the claim, where summing a set 1 to M of vectors and dividing the vector sum by M will produce a vector representing an average of the vectors in the set 1 to M)(col. 11, lines 5-15), for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col. 11, lines 15-18).

Consequently, it would have been obvious to one of ordinary skill in the art to modify the system of Ismail and Sumita to include the formula as recited in the claim which, generates an average of vectors  $A_k$ , as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user in a broadcast recording system.

With regard to claims 5 and 14, the combined system of Ismail and Sumita discloses a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) attached to a plurality of contents reproduced by a user for a specified time (Sumita, column 4, lines 62-67) and digital contents (Ismail, see digital encoding, column 4, lines 40-47), and the vector  $A_k = (a_{1k}, a_{2k}, a_{3k}, \dots, a_{nk})$  however they fail to specifically disclose wherein said selection information vector is found according to the equation:



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$$S = \frac{1}{M} \sum_{k=L-M+1}^L A_k$$

where M is assumed to be the number of windows for finding a vector S; L is assumed to be a start point for selecting a plurality of digital contents for finding the vector S.

The formula recited in the claim generates an average of M vectors  $A_k$  taken from a set of vectors  $A_k$  of size L, corresponding to the teaching of Hawkins who, in an analogous art, discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information over a specified period of time (an operation which requires taking some number of previous selection preferences vectors from a set encompassing the entirety of user selection preferences vectors, and generating an average selection vector based on the selected subset of user preference selections vectors) (col. 11, lines 5-15), for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col. 11, lines 15-18).

Consequently, it would have been obvious to one of ordinary skill in the art to modify the system of Ismail and Sumita to include the formula as recited in the claim which, generates an average of M vectors  $A_k$  taken from a set of vectors  $A_k$  of size L, as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user in a broadcast recording system.

Considering claims 6 and 15, the combined system of Ismail and Sumita discloses a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) attached to a plurality of contents reproduced by a user for a specified time (Sumita, column 4, lines 62-67) and digital contents (Ismail, see digital encoding, column 4, lines 40-47), however they fail to specifically disclose wherein said selection information vector is found by averaging vectors A for attribute information over a specified period of time, as recited in the claims.

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Hawkins discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information over a specified period of time (col. 11, lines 5-15), for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col. 11, lines 15-18).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ismail and Sumita to include said selection information vector is found by averaging vectors A for attribute information over a specified period of time, as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user.

5. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail in view of Sumita, as applied to claims 3 and 12 above, and further in view of Eldering et al. (Eldering) (US 6,457,010), and further in view of Inoue et al. (Inoue) (US 6,185,360).

Considering claims 7 and 16, the combined system of Ismail and Sumita discloses a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) and attribute information attached to a plurality of digital contents (Ismail, see digital encoding, column 4, lines 40-47 and column 3, lines 43-48), however they fail to specifically disclose wherein said selection information vector is found by averaging vectors A for attribute information and wherein attribute information is attached to a plurality of contents reserved by a user, as recited in the claims.

In an analogous art, Eldering discloses a system wherein said selection information vector is found by averaging vectors for attribute information (column 4, lines 42-51), for the purpose of describing demographic information for a household, rather than a single subscriber (column 4, lines 42-

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51). Eldering, however, fails to specifically disclose wherein attribute information is attached to a plurality of contents reserved by a user, as recited in the claims.

In a further analogous art, Inoue discloses a system wherein attribute information (service additional information) is attached to a plurality of contents reserved by a user (column 17, lines 37-47), for the purpose of using the information to judge whether or not to reserve the program.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail and Sumita to include wherein said selection information vector is found by averaging vectors for attribute information, as taught by Eldering, for the purpose of for the purpose of being able to convey demographic information for an entire household, rather than a single subscriber in a user profile feedback system.

It would have further been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, and Eldering to include wherein attribute information is attached to a plurality of contents reserved by a user, as taught by Inoue, for the purpose of using the attribute information to judge whether or not to reserve the program based on user preferences in a content receiving system.

2. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail and Sumita as applied to claims 3 and 12 above, and further in view of Russel-Falla (Russel-Falla et al., US006266664B1).

With regard to claims 8 and 17, the combined system of Ismail and Sumita discloses a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) attached to a plurality of contents reproduced by a user for a specified time (Sumita, column 4, lines 62-67) and digital contents (Ismail, see digital encoding, column 4, lines 40-47), however they fail to

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specifically disclose averaging vectors for attribute information for contents reserved by a user, assigning a weight to each average, and combining these weights.

In an analogous art, Russell-Falla discloses a system wherein a selection vector is found according to:

$$\text{rating} = (n \sum_{l \text{ to } p} x_p w_p) / c$$

where c is the number of contents selected by a user; and  $x_p w_p$  is an attribute vector, n is a weight assigned to the average (scale factor, col. 5, lines 28-29), and combining these weights (summing the weighted or scaled averages), as taught by Russell-Falla for the purpose of rating content relative to a selected characteristic in a broadcast recording system. Russell-Falla fails to explicitly disclose wherein attribute information is attached to a plurality of contents reserved by a user, as recited in the claims.

In a further analogous art, Inoue discloses a system wherein attribute information (service additional information) is attached to a plurality of contents reserved by a user (column 17, lines 37-47), for the purpose of using the information to judge whether or not to reserve the program.

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ismail and Sumita to include said selection vector is found according to:

$$\text{rating} = (n \sum_{l \text{ to } p} x_p w_p) / c$$

where c is the number of contents selected by a user; and  $x_p w_p$  is an attribute vector, n is a weight assigned to the average, and combining these weights, as taught by Russell-Falla, for the purpose of rating content relative to a selected characteristic in a broadcast recording system.

It would have further been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, and Russell-Falla to include wherein attribute information

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is attached to a plurality of contents reserved by a user, as taught by Inoue, for the purpose of using the attribute information to judge whether or not to reserve the program based on user preferences in a content receiving system.

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail in view of Sumita, as applied to claims 1 and 10 above, and further in view of Eldering.

Considering claims 9 and 18, the combined system of Ismail and Sumita disclose a broadcasting system where said reception means (Ismail, column 4, lines 40-41) selects digital content (Ismail, see digital encoding, column 4, lines 40-47) based on a vector of selection information (Sumita, user profile information, column 7, lines 54-58 and vector Pi, column 7, lines 65-66), however they fail to specifically disclose said selection information corresponding to a plurality of users, as recited in the claims.

In an analogous art, Eldering discloses said selection information corresponding to a plurality of users (column 4, lines 42-51), for the purpose of indicating which content a household will be interested in (column 2, lines 23-32).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail and Sumita to include said selection information corresponding to a plurality of users, as taught by Eldering, for the purpose of indicating the type of content a household as a whole will be interested in, in a user profile feedback system.

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***Conclusion***

7. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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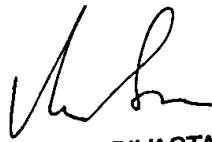
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Lambrecht whose telephone number is (703) 305-8710. The examiner can normally be reached on 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher M. Lambrecht  
Examiner  
Art Unit 2611

CML



VIVEK SRIVASTAVA  
PRIMARY EXAMINER